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AND PHOTOGRAPHIC ENLARGER
EDITED BY J. HAY TAYLOR
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NOTICES.

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NOTES.

Eureka Gas.—The inventor of this new gas is Mr. Hector de Fazi, of Montefiascone, Italy. It is said to be obtained as follows:—Lime as pure as possible is employed as a base, colophony and calcium carbide being added. One thousand parts of the mixture ready for use consist of 900 of quicklime, 50 of colophony, and 50 of calcium carbide. There is no fear of explosion by mixing with air, no heating of water, and no special burner is needed. One thousand parts of the mixture give 60 litres of gas at a pressure of 35 millimetres of water. The photometric intensity of the flame is said to be 92·4 candle hours, and the same amount of calcium carbide employed singly would only give 18 candle hours. Eureka gas is 50 per cent. cheaper than acetylene, or at equal cost Eureka gas gives half as much more light.

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Velotrope.—Mr. Liesegang has just invented a somewhat ingenious apparatus which may prove useful to lecturers. It is a new appliance adaptable to the lantern and enabling rapid changing of slides. This apparatus, which is adaptable to ordinary lanterns, is very simple, and enables employment of slides of various forms and dimensions. Simple pressure on an india-rubber pear causes substitution of a new slide for the preceding. The lecturer then can, without interruption, exhibit a series of views to the audience. In the absence of an assistant, the velotrope certainly averts much trouble.

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Insurance and Liquefied Acetylene Gas.—Permission has been given in Philadelphia, U.S.A., by the Fire Underwriters' Association for the use of liquefied acetylene gas under certain conditions, viz., that the pressure of gas on the piping in the building shall not exceed one-quarter of a pound per square inch. The cylinder containing the liquefied gas to be in a detached building, so ventilated that the action of the sun will not interfere, a hand valve to be fixed just outside of the building insured so that the supply of gas can be at once shut off if desired. Pressure reducing valves and vent pipes to the outside must be provided.

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An Iron-Lined Room.—During a recent trade exhibition at the Agricultural Hall, Islington, at which cinematographic pictures were to be shown, the management insisted that the apparatus be enclosed in a fireproof chamber, so a partitioning had to be erected and lined with sheet iron. Is this not carrying matters to extremes?

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X Ray Journal.—Even X rays is to have its own literature, for the first number of the *American X Ray Journal* has lately made its appearance. It is published at St. Louis, U.S.A.

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Jubilee Animated Pictures.—Mr. Alfred Wrench obtained an excellent series of pictures of the Jubilee procession last month from a fine position at the corner of King William Street, E.C. The cinematograph used was that patented by him and extensively used throughout Great Britain. The directors of the Alhambra Theatre, ever anxious to have everything of the best, have secured the exclusive right for two months of exhibiting these pictures within a prescribed radius. The film on which the pictures are printed is about one thousand feet long, and includes the seventeen carriages forming the Queen's procession. Mr. Wrench has also obtained cinematograph pictures of the Naval Review at Spithead.

The Motorgraph at the Jubilee Procession.—Two spools of film each of about 500 feet were exposed in this instrument by Mr. Harold A. Sanders. These, we learn, have been a great success, and have been put on the market by Messrs. Watson and Son, in lengths of about 75 feet.

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Scottish Acetylene Gas Company.—This company recently sent a representative to London to give demonstrations for three days of their acetylene generators, which have recently been improved. Many persons availed themselves of invitations sent to them.

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Kodak Electric Sign.—The enterprising Eastman Photographic Materials Company have erected a huge electric sign with the letters "Kodak" seven feet high, in a prominent position in Trafalgar Square, W. By day it is bright gold, and by night it flashes the company's trade mark with very pronounced effect. It is pleasing to know that this company have just paid a dividend of 10 per cent. upon both its preference and ordinary shares.

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Fuerst's New Cinematographic Slides.—It will interest readers to know that Messrs. Fuerst Bros. are in a position to supply four scenes of the Aldershot Jubilee Review (1897), including the Queen's Arrival and Departure. Of the Royal Henley Regatta (1897) they can supply the final race for the "Grand Challenge Cup" and the final race for the "Diamond Sculls."

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Acetylene Gas in New Zealand.—A company is being formed in Wellington to work the acetylene gas patent, and there is a probability that the calcium carbide, which makes the gas by simple contact with water, will be manufactured on a large scale in New Zealand. The site of the manufactory will probably be at Greymouth, Westport, or Tata Island, near Nelson. As there is plenty of water power in New Zealand, also lime and coke, it is expected that an extensive market for the carbide will be found in Australia and the East, where water power is scarce. The light, which is being exhibited in Wellington, is now attracting considerable attention.

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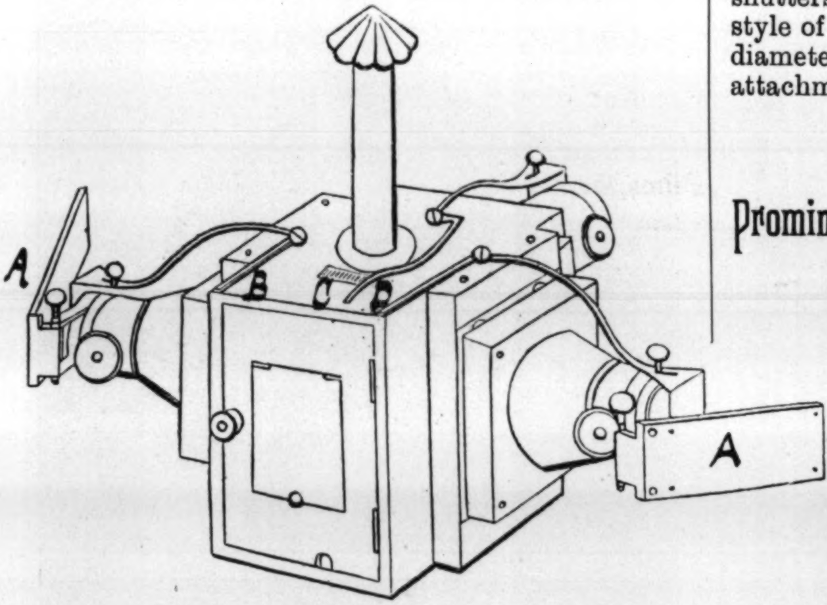
Jubilee Cinematograph Slides.—Twelve cinematograph film slides, each 40 feet long, of the Jubilee procession have been issued by Mr. Philipp Wolff.

Beechey's Trinoptric Lantern.

SOME few months ago a letter appeared in this journal requesting particulars of a peculiar form of lantern which was to a small extent employed several years ago. This lantern was described as being adapted to produce effects with one light. It was, we find, the invention of Canon Beechey, who invented and registered it somewhere about the year 1846 or 1847, and although at the time it was spoken of as being a patent lantern, we are unable to trace that any patent was granted for it. The design, however, was registered, and in its day it created quite a sensation, as it possessed many good points.



We are now enabled to give an illustration of this apparatus, from which it will be seen that it had one body and three nozzles; it possessed one illuminant only, and the discs from the side nozzles were rendered coincident with that from the front nozzle by means of adjustable reflectors or mirrors placed immediately in front of the two side objectives.

The light employed in this lantern was a fountain lamp with circular wick. In the exact centre of the wick, and level with it when raised, was a small tube for supplying oxygen gas with a small cup at the bottom to catch any overflow of oil. This small tube was connected up to a bag containing oxygen, the supply of which was regulated by means of the tap on the bag. Over the centre of the wick and oxygen tube was suspended, by means of fine platina wire, **a ball of lime,** which greatly increased the brilliancy of the light. The best olive oil was used in the lamp, and the consumption per hour was an ounce and a half of oil and about a cubic foot of oxygen.

The uses for this lantern were many, and as the side discs could be regulated as to distance between each other, it was possible to project two discs side by side, as in showing the two hemispheres of the globe on the screen at once. In order to render the discs coincident the front one was first projected in position on the screen, then that from the side nozzles rendered coincident by adjusting the reflectors A A.

Any or either of the discs could be shut off at will by moving the arms B C D, which controlled shutters placed in front of each objective. This style of lantern fitted with lenses of 3¾ inches diameter used to sell for £17. A microscopic attachment was also made for this lantern.

Prominent Men in the Lantern World.

No. X.—Mr. C. W. LOCKE.

THE name of Mr. C. W. Locke is almost a household word amongst lanternists, for he has been prominently before the public ever since 1874, in which year he was engaged by that celebrated and popular lecturer, Mr. B. J. Malden, but even previous to this he had had considerable magic lantern experience. At the early age of 7 or 8, he was taken to his first lantern show, which was an oil-light dissolving view entertainment, which he well recollects; the impression of those views, he informs us, are yet vividly fixed on his mind. He remembers that at this exhibition the views were about 6 or 7 feet in diameter, that the dissolving was most beautifully graduated, the brilliance of the disc remaining the same right through the dissolving, and that the light obtained from the solar argand lamps was very good. Of course at that time the views were all hand-painted. He also remembers that the lanterns were placed only a short distance behind a wetted screen, and so greatly absorbed was he in the lanternist packing up that he was reluctant to leave.

Mr. Locke dates his lantern mania from this time, for very shortly after he managed to purchase a small toy lantern, and after a time another similar to it. With these two lanterns he contrived a dissolving view show of his own, making his own fan-dissolver out of pieces of tin and strips of wood, and sliding it in front of the lenses in grooves formed by two heavy books.

Appreciating his great interest in lanterns, his uncle allowed him the use of a much larger pair of lanterns, with which he rapidly improved himself. For a term of six years he was apprenticed to a firm of coach builders, and it was during this period that he gained his mechanical knowledge so useful to every boy, and all odd moments were filled up by experiments, by reading mechanical and scientific works, and in the construction of various models in metal and wood. This mechanical knowledge and the art of brass turning and finishing has been of the greatest service to him since.

The best lanternists are undoubtedly those who have a good supply of general knowledge, and are possessed of good mechanical ideas; this is undoubtedly the case as has been proved in the majority of "Prominent Men in the Lantern World." In 1874 he became lanternist to Mr. B. J. Malden, F.R.G.S., and immediately set to work to thoroughly master his first new triple lantern, which was built for him by the firm of J. H. Steward, from Mr. Malden's suggestions; this was considered a beautiful instrument, practical and most easily manipulated by one pair of hands, and producing unequalled results.

After a fortnight's able coaching Mr. Locke gave his first public show with great success in the Mechanics' Hall, Cookridge Street, Leeds, illustrating the topical lecture of the time, viz., the "Coomassie War." Mr. Locke feels himself much indebted to Mr. Malden, for he is not only a pleasant and chatty lecturer, but a thoroughly practical lanternist, as well as being genial and kindly disposed. During the thirteen years Mr. Locke was with Mr. Malden he worked out several little contrivances for the better display of certain mechanical effects, which previously required more than one person to manipulate properly. For instance, there was a double slip slide with trains to cross a bridge in opposite directions. These would in the ordinary way have been shown with one train at a time moving, but Mr. Locke greatly improved this by adding appliances to the slide, which not only moved both trains at once but left one hand free to raise the curtain on this opening effect, which never failed to elicit genuine applause whenever used. Another good effect was a slide which he constructed to throw shells from ships in action into a fort and explode; the shells as they left the ships were made to describe the segment of a circle, and this followed by the explosion was always very successful. He also invented a slide to project the strobic circles, also a very effective lightning slide, which produced the flashing with a very realistic effect. Many other little mechanical contrivances which greatly assisted in the smooth working of several mechanical effects, which go so much towards making a lantern show a success, emanated from him.

1897.

Photo by Kœnig] [373, *Edgware Road, W.*

At the expiration of his agreement with Mr. Malden, that gentleman gave him a splendid testimonial, which is greatly valued by the recipient.

In the year 1880, on the introduction of the photographic dry plate, Mr. Locke went in strongly for photography, and practised with wet and dry plate processes, making slide production and colouring a hobby which has since been of great service to him, as he is now an expert photographer and often employed in the museums and galleries for reproducing works of art for historical and other publications.

In 1887 he was invited to join the firm of D. Noakes & Son as a partner, and for eight years worked most assiduously, attending to the correspondence, testing and correcting various pieces of apparatus, such as jets, dissolvers and lanterns when completed, also the making of lantern slides, besides attending the chief operating of the lantern business, and by his work undoubtedly helped, in a very marked degree, to further the reputation of that firm. It was during this time that he suggested the screw-down valve for jets.

In 1895, an opportunity occurred which enabled him to commence business entirely on his own account, and he has succeeded in establishing an extensive and prosperous concern at 244, Tottenham Court Road, W., where various parts of instruments may be seen in course of manufacture, the whole of the work being done on the premises. Mr. Locke is also the inventor of a most novel and immensely powerful mixed gas jet, and also what he terms "jet slides." The former has met with great success, being in extensive use in all parts of the kingdom, both for microscopical, optical lanterns, and cinematographic projection. This is also the jet used by himself at all his Royal Albert Hall displays, where the views are amplified to the enormous size of 35 feet diameter (actual measurement).

In the March issue of this journal we called special attention to his work there in connection with the Royal Geographical Society and Dr. Nansen, which was undoubtedly a magnificent success, the whole of the lantern arrangements being most perfect and on the grandest scale.

The jet slide alluded to is an invention which entirely does away with the ordinary tray, and allows the lantern to be open right through, which greatly facilitates the ready escape of heat, with the advantage also of perfect rigidity and easy adjustment of the jet. He has also introduced a new method of lining a lantern for the purpose of preventing the heat damaging the woodwork, and also for protecting the external appearance of the instrument.

We are pleased to learn that Mr. Locke is now writing and illustrating a very interesting article on "Lantern Projection at the Royal Albert Hall," which will appear in our coming Annual, which book will of course be read by all lanternists. Mr. Locke has exhibited in almost every notable town in England, and has also visited Wales, Scotland, France, and the Channel Islands in his wonderfully extended experience of lantern work. He has probably given more high-class shows than any person we know of, and as a maker knows what to do, and how to do it.

Hints on Exhibiting Cinematographs.

By **EDMUND A. ROBINS.**

THE cinematograph is now becoming such an important part of all public entertainments, that a few words upon the management of a show may not be entirely out of place, coming as they do from experience gained while on tour in the provinces with one of these instruments. The position of the machine should be such that it cannot be seen by the audience, preferably behind a screen, or else surrounded by curtains in order to keep in all stray light and noise, both of which are unavoidable; the machine should be upon as firm a foundation as possible, and secured to this by means of stage screws. The lamps fitted to cinematographs are either electric arc light or limelight, at the option of the purchaser, but it is advisable to have both fitted.

For ease in working, brilliancy of illumination, and many other advantages, the former is the better, but it may be argued that electricity is not always available; this is true, but few halls now have not electricity laid on, and, in this case, the switchboard can easily be tapped; of course, a hundred feet of cable, sufficient to carry 30 amperes and an adjustable resistance and ammeter, must be carried. On the other hand, in some situations, such as entertainments in private houses, limelight must be used, and therefore I advise having both fitted; the limelight should be preferably a mixed jet having a nipple with a large hole and hard limes. Gwyer's high-power jets, which are said to give 2,000 candle-power, can be recommended, but even then the illumination is far below that produced by a good arc lamp, and the trouble of continually turning the lime, and the likelihood of it breaking, will deter many from using limelight. The light in either case must be accurately centred with a condenser and objective, and the lower carbon of the arc lamp placed so that it is at the centre of the condenser; supposing continuous current to be used and the bottom carbon be the negative, then the lower carbon should be about ⅜-inch in front of the upper as the crater formed at the positive carbon acts as a reflector. Alternating currents are very troublesome, as the arc has the curious property of continually wandering around the carbons, and so causing alterations in the light; this can be stopped to a certain extent by filing a flat upon the carbons, which idea I believe is due to Mr. Hepworth. The lamp should be so placed that a

disc of light

is thrown by the condenser upon the opening past which the film runs; the disc should be rather larger than the rectangular opening, as colour is always formed to a certain extent by the condenser at the edges of the disc. A piece of thin paper should now be placed in the position the film will eventually occupy, and the edge focused upon the screen, which should be evenly illuminated if the above directions be carried out. The shutter is then placed over the condenser and the film placed in position.

The method of doing this depends so much upon the make of the machine, that no directions can be given; of course, the film is upside down, and care must be taken that the teeth of the pin-wheels engage in the perforation on the two edges of the film. I generally found it advisable to turn the wheel slightly, as then any error of adjustment can be detected before the picture is thrown upon the screen. A small hole in the condenser shutter facilitates the adjustment, which should be carefully done, as nothing is so much enjoyed by the "small boy in the gallery," and so aggravating to the operator as a picture to jump a few holes through bad adjustment, and show the parts of two adjacent pictures upon the screen. In running the machine the speed should be kept constant, except when an effect can be introduced by increasing or decreasing the speed, such as running slightly faster during a race, and slower during the subsequent crowd. The speed should be as high as possible without making the picture unnatural, as far less flicker is produced at high speed, but each picture requires different rates of running depending upon the speed at which it was taken. It is always advisable to have a spare band handy when the machine is run from a large wheel by means of a belt, as if leather bands are used they may break or stretch; gut bands are recommended, as they may be tightened or loosened within small limits by twisting or untwisting the gut, and are far less liable to break. The films should be, if possible, joined in one continuous length, as this facilitates adjustment and speed of production; portions of plain film of the same perforation are placed between each two, care being taken that the proper number of holes are between the two films in order to have the following film in register; for Paul's perforation 6 inches will give the right number. The light should always be shut off before the film comes to an end and shows white upon the screen, and

with a little practice

the shutter can be dropped on the last few pictures. It is also advisable to start running just before the shutter is raised, as most machines cut off a portion of the light, and if the picture is still when the shutter is raised, the diminution of light is very noticeable. Sometimes a picture may be improved by raising the shutter before starting, as in a race-course before the horses come into sight, but it must not be continued for more than 20 seconds as the film will rapidly catch fire; the alum trough has been proved to be of no use, and is only a nuisance, as it is continually leaking.

The screen is of two kinds, according to circumstances, transparent or opaque. The former is composed of a fine variety of linen stretched as tight as possible and wetted a few minutes before the show; the latter may be of calico, and must be well whitewashed with whiting, into which a little blue is placed—this gives when dry a very good surface, and the screen always looks better if it is draped round the sides, giving the appearance of a picture frame. The machine must be kept well cleaned and oiled, specially in the running parts; and in those with the cams and star wheels, such as Paul's, Clement & Gilmer's, Wolff's, and many others, these parts should be well lubricated with vaseline. Especial attention should be paid to the cleanliness of the parts over which the film passes, and also to the surface which touches the film, else the films will be scratched. The films should be received into a cloth covered basket if allowed to run loose, and not on the floor; they should be examined after every show, and all tears and breaks mended, specially those occurring in the perforations. If these are neglected, sooner or later a serious mishap may occur by the pins not engaging with the perforations. Mending may be done by means of plain celluloid and acetone. The tear is scraped clean and a thin piece of celluloid laid over it; a little acetone is placed between the two, and the whole pressed together between glass until set, which takes a very short time; films can be joined up in the same way, by scraping away the gelatine and placing acetone between by means of a camel's hair brush, and pressing as above. Success in repairing depends entirely upon using as little acetone as is possible.

An improvement is introduced by having a separate lantern, and throwing the titles upon the screen before each picture. These can be made by photographing large cards with the title written on. This gives the operator time to see to the adjustment of his lamp and pictures, but on no account keep your audience waiting for any length of time with nothing upon the screen, and do not run pictures of too great a length or too many of one kind together, mix the comic and serious, and they will be appreciated far more, and as a final, run a picture backwards through the machine, which generally causes a great amount of amusement.

Architecture as a Subject for Lantern Slides.—No. IX.

By T. PERKINS.

REDUCTION I generally do with perchloride of iron, followed by a swill and immersion in the fixing bath for a few seconds if still further reduction is desirable, and then by a thorough washing. Partial reduction may be managed by soaking the plate, if it has been dried, till the film is thoroughly wetted through, and then wiping off the moisture with a clean cloth and applying the reducer with a brush and then putting the negative into the fixing bath. I have frequently heard of mechanical reduction by rubbing down with a rag moistened with spirit recommended, and it certainly is of great use, especially in getting rid of the thick deposit on windows which blocks up the finer detail, but it is a process requiring the utmost care. "Rub vigorously till the negative fairly screams" is advice I have heard given, but I would not advise anyone to follow it unless he has a duplicate negative to fall back upon, or can easily take another in case he spoils the first, for I have before now sometimes rubbed off part of the film altogether by this process, and sometimes scratched it with transparent lines owing to a bit of grit getting on the rag. If there is any defect in the film such as one often meets with, even in good plates, the former result is very likely to happen. My plan is—I am speaking only of small negatives—to cover my finger with an old clean handkerchief (one thickness only) dip it in spirit, put the negative against a window pane, and rub firmly but not wildly; gradually it will be seen that the handkerchief over the finger is getting black and the hitherto buried detail is appearing in the over-dense part of the negative; the handkerchief must be re-wetted before it gets dry, for the dry handkerchief is likely to act too vigorously on the film still damp from the spirit. It is sometimes difficult not to rub down the surrounding part of the negative which requires no reduction while rubbing down the part that does require it; a little wedge, made from a match, covered with the rag moistened in spirit will in such cases be useful. But the work must always be very carefully done, for it should be remembered that as our object is to produce a lantern slide which will be enlarged many diameters on the screen, little defects in the negative that would scarcely be noticed in a print, or could be easily spotted out, will be very evident when the picture is projected on the screen. Hence, too, any tiny transparent spots in the negative require very careful spotting out, whether this is done with a fine camel hair brush and water colour, or with a blacklead pencil on the film previously roughened by rubbing it with a finger dipped in powdered resin to make it take the pencil. When the negative is

satisfactorily completed,

it remains to print the transparency. I prefer to use plates which, according to the method of development chosen, will yield a great variety of colours, from black through various shades of brown to the hue of red sandstone; for a colour imitating that of the building will form a pleasing variety in a set of slides and also will enable us to make the pictures on the screen more like the buildings they represent.

It will greatly tend to the preservation of clearness if we mask the negative, a thing which can be easily done by strips cut from slide binders, so that no light can come in from the clear glass round the edge of the negative; backing the lantern plate with antihalation paper or mixture, if not considered too much trouble, will also improve the quality of the slide. It will be found advisable to stick to one make of lantern plates, and to use the formulæ given in the accompanying directions. The most convenient developer is I think hydrokinone, as by adding to it more and more of a solution containing carbonate and bromide of ammonium, at the same time increasing the exposure and the time of development, the colour of the transparency can be greatly altered to suit the subject. When however much of this modifying solution is used it will be necessary to be on one's guard not to get the slide too dense, the pale colour of the deposit seen by looking down on it as the plate lies on the dish giving rise to the impression that the development cannot be finished, when if the plate be looked at by transmitted light it would be seen to be vigorous enough. Fog also may sometimes appear with this modified developer, and the transparency be ruined by it.

Very beautiful slides may be made by carrying the development rather further than necessary, and then reducing by Howard Farmer's formula, viz.:—Saturated solution of ferridcyanide of potassium 1 part to 10 parts of a $1\frac{1}{2}$ per cent. solution of hyposulphite of soda. This removes all the veiling that sometimes occurs, and gives a bright clear slide.

When the lantern plate is finished it must be mounted and bound; masks with rectangular openings are in almost all cases most suitable, and it is well to write neatly on small strips of gummed paper the title of each slide and stick it on the mask so that the cover glass may protect it, but I prefer to stick the spots which act as guides to the right way of putting the slide into the lantern, and which I always use for numbering the slide, on the outside of the cover glass, as then they may be **easily removed** if it is necessary, as so often it is, to re-number the slides for lecture purposes.

With a description of my method of storing my architectural slides I will bring this series of articles to a conclusion. I keep my slides in the cardboard boxes in which I buy the lantern plates, each box will hold from nine to twelve finished slides. I write on the bottom of each box first the name of the county in which the buildings stand, slides of which may be found in that box, and then the name of the individual buildings, and when the box is filled I put on its cover, and then turn it upside down and place it in a pile on a shelf with others that contain slides of buildings in the same county. For example, I pick up a box from my shelves thus marked:—

Dorset.—Cerne, Clenston, Abbotsbury, Melcombe; another,

Northants.—Irthingborough, Northampton, Brixworth, Earl's Barton, Finedon, Higham, Rushdon; and if I want to find a slide of any particular building, say Abbotsbury, I first look for the pile containing views of buildings in the right county, in this case Dorset, and then read the names of the individual buildings written on the bottoms of the boxes till I find the right one, which I then open and from it take out the slide wanted. My reason for writing on the bottoms rather than the lids of the boxes, is that if the lids are taken off several boxes at the same time it may happen that in putting them back a mistake may be made, but if the name is on the bottom nothing of the kind can happen. I find by storing my slides in this manner I can in a very short time, and without much trouble, pick out any individual slide from my collection, which consists of several thousands. When I am going to give any special lecture, I thus pick out what I require, probably about five dozen slides, spread them out on a white table cloth so that I can easily distinguish them, arrange them in order, number them to correspond with my lecture notes, and pack them either in cardboard boxes by nines, or in a wooden travelling box according to circumstances, all duly arranged in order so that there may be no hitch at the time of showing them. After the lecture they are put together, brought home, and put back again into their own cardboard boxes and piled up on the shelves kept for that purpose.

A Magic Lantern of 1737.

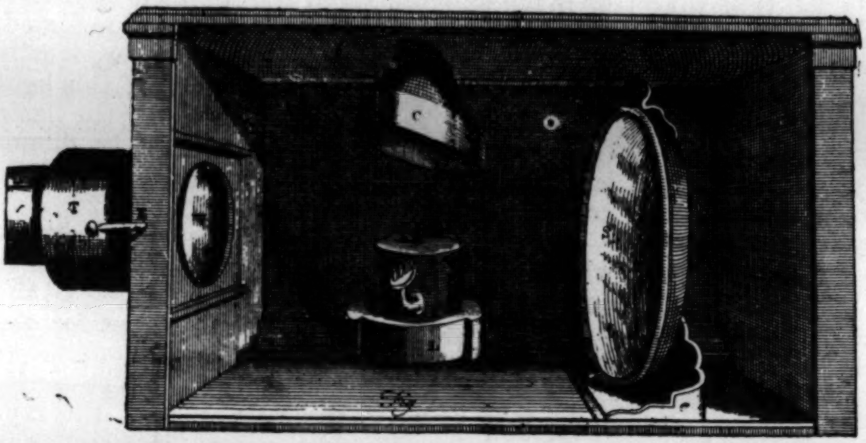
By E. D.

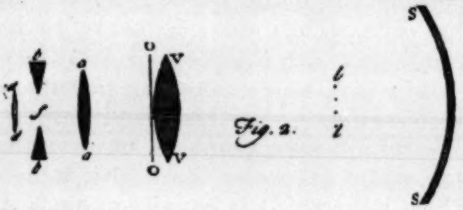
THE following account of a lantern, written by a Frenchman, Dr. Desaguleers, in the year one thousand seven hundred and thirty-seven, may be of interest to the readers of THE OPTICAL MAGIC LANTERN JOURNAL.

The formation of several instruments are produced by the combination of mirrors and lenses, which are very interesting. Foremost among these is the "Magic Lantern," a description of which is given in a book written in the time previously mentioned.

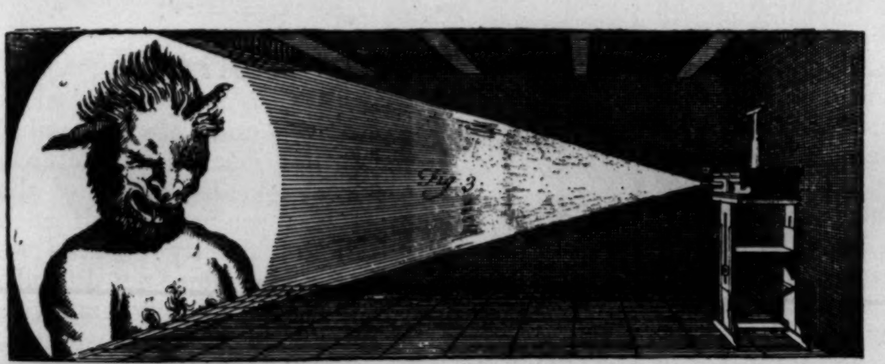
The following is the description of Fig. I. Let there be a wooden box about a foot and a half long 14 inches high and as wide. There must be a concave mirror s of 8 inches diameter, and a portion of a sphere of 18 inches. This mirror is fixed to a foot which moves upon rulers along the length of the box. There is also in this box a lamp L, sustained by a wooden foot, which is moveable longwise between two rulers, in the side of the box. The pipe of the lamp stands forward in such manner that the centre of the flame is over against the centre of the surface of the mirror. This flame is made up of four little flames, which by touching one another make one square flame two inches wide.

In the top or upper plane of the box, there is an oblong hole which has a cover that slides to two grooves. Through this cover passes the chimney C, which stands up about half a foot above the box, as shown in Fig. III. The chimney is moveable with the cover, while the opening remains shut, that the chimney may be always over the lamp.





In one of the sides of the box, which is over against the mirror, there must be a round hole V, about 5 inches wide, which must have in it a convex lens of glass of the same size convex on both sides, which are portions of a sphere of one foot diameter. The axis of this glass being continued to the surface of the mirror, will be perpendicular to it, and fall upon its centre, as likewise to the plane of the flame, through whose middle point it also passes. This hole is shut and opened by a plane, moveable in a groove, which is moved by a cylinder that stands out of the box at E.



To this hole without the box answers the tube T, whose length and diameter is of about 6 inches, at the end of which there is a ring in which the second tube T moves, of about 4 inches diameter and 5 or 6 inches long. In the lesser tube there are two lenses, the first in that end which is thrust into the tube T, and it is of the same convexity as the glass V, and 3½ inches diameter. The second lens is 3 inches from the first, and flatter, being terminated by portions of a sphere of 4 feet diameter. Between these lenses, at a distance of about an inch from the second, there is placed a wooden circular stop or aperture, which shuts up all the tube, except an hole of 1¼ inches diameter in the middle of the wood.

The objects that are to be represented are to be painted upon a flat thin piece of glass which must be moved without the box over against the glass V, between it and the tube T, the picture being in an inverted position. If these pictures are round they may be of 5 inches diameter. That they may be moved easily, they are put into flat boards, three in a board. The picture also may be painted on long glasses which may be successfully made to slide before the glass V. Then there is a

description of a suitable stand

similar to the one used in the present day. (Fig. III.) This whole box stands upon a frame or foot, made so that it may be fixed at different heights; there are flat pieces of wood fixed to the box at bottom, which slide in grooves in the frame; each of them has a slit in it so that the box may be made fast at any desired height by the help of screws joined to the frame, and moveable in the slits.

The whole machine is placed at the distance of 15, 20 or 30 feet from a white plane, which distance must be different, according to the bigness of the plane, for this distance may be equal to the length of the plane; the box must be just at such a height that the tubes in the side of the box may be exactly opposite to the middle of the plane.

The lamp being lighted, the box must shut, and the figures which are painted upon the glass will be represented upon a white plane; by moving backwards and forwards the tube that has the two lenses in it, the proper position of the glasses required to give distinct representation will be ascertained. As for the disposition of the different parts of the machine which immediately serve for exhibiting this appearance, I shall here more particularly explain.

The parts in Fig. II. are shown separately: S S is the mirror, L L the flame which consists of four flames in the line L L; V V is the glass V of the first figure; O O is a picture painted upon a flat thin piece of glass; A A the biggest lens; B B the flattest lens; D D the wooden stop between the lenses; F the aperture or hole in the middle of the wooden circle.

These things being disposed as has been already explained, and as may be seen in the figure, the rays which proceed from a point of the picture O O, by going through the lens A A, become less diverging and fall upon the lens D D, as if they come from a point more remote; from this lens they go out more converging, and are collected upon the surface of the white plane, where they exhibit the point of picture that is painted on the glass; this picture is illuminated both by the rays that proceed from the flame L L, and by the rays reflected by the mirror S S.

For the perfection of this machine it is required: First, that the figure O O be enlightened as much as possible; second, that it may be equally enlightened in all its points; third, that all the light by which every point of the picture is enlightened go through the lenses A A and D D to the white plane and serve to make the representation; fourth, that no other light but that go out of the box, less the representation should be less lively by reason of extraneous light.

The first requisite depends upon the bigness of the flame, and of the mirror, and of its concavity; the more concave it is the nearer it is to be brought to the flame and then the more rays will be intercepted and reflected; yet care must be taken that the mirror (which may be made of very good glass) be not too much heated.

When the flame and mirror are so contrived that the picture is the most enlightened that it can possibly be, and everywhere equally enlightened, the flame and mirror must be so placed that the inverted image of the flame shall fall just upon the picture. Now, as the representation of the flame can be increased and diminished, the mirror and flame must be so disposed that the representation of the flame shall cover the whole picture upon the glass, but so as not to exceed it; for then the picture is as much enlightened by the reflected light as it can be, and all its points are equally illuminated. The direct light also does pretty near equally fall upon all the points of the picture; this light would indeed be increased by bringing the flame nearer, but the reflected light would be diminished, and the diminution of this last would be greater than the increase of the other.

The glass V V serves to inflect the light, by which the picture O O is illuminated before it comes to the picture, by which inflection all the light comes to the lens A A, and serves for the representation on the white plane.

All the light that is of use for the representation goes through the hole F, and the rays coming from different points intersect one another there, wherefore the picture upon the glass, which is placed inverted, is represented erect upon the white plane; by the ring B B, all the rays which do not serve to form the representation are intercepted lest they should enter the room, and make the picture less distinct; this ring or aperture also intercepts those rays by which one point is more enlightened than another, whereby the light, which (from what has been said) is equally enough diffused, is yet made more equal, but unless the stop or aperture B B be first where the rays intersect, it does a great deal of mischief.

*Visions of Art.**

BY what artifice does Mr. Mareschal produce these marvellous pictures, where the slightest motion of the features is reproduced with such extraordinary fidelity? This we cannot say; it is a secret not difficult, perhaps, for a photography expert to explain, but a secret must be respected. Certainly it will make the inventor's fortune, to judge from the number of spectators. Visions of Art! Is this a new school being founded? Visions of Art!—a suggestive title which attracts us, for in spite of our scepticism we have preserved a great respect for the marvellous, the fantastic. Probably the effect of atavism. The visions of art at the *Salle du Boulevard des Capucines* are animated pictures. The most famous pictures by José Frappa are, in turn, presented to the spectators. There is simply a black frame containing a translucent tissue on the wall of the room. When the room is darkened a feeble light is emitted by the frame ; little by little colours appear on the screen, and the subject appears firstly confused, then remarkably clear.

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* From *Le Vie Scientifique.*

The subject—let us say model, because there is the illusion of life—gradually abandons its marmorean attitude and grows animated, the eyelids move, the hands are raised, the breast heaves, it is real life. Vision is just the word for these pictures, and artistic visions, because here art reigns supreme. In the animated pictures of Mr. Mareschal the images are perfect, and much larger than those of the kinematograph. Those we saw projected were one and a half times the natural size, but they can be further enlarged, the size of the projection being limited only by the dimensions of the room. The remarkable part of these pictures is vivid accurate colours, the perfect movements and play of features. These pictures of Messrs. José Frappa and Mareschal are superior to all others, and can remain on the screen an indefinite time. The impression produced is really striking, the spectacle is truly artistic, and the title selected by Mr. José Frappa, the painter, and Mareschal, the photographer, is amply justified.

Painting and photography have formed an alliance which, no doubt, will put an end to the irritating disputes separating painters and photographers.

The Invention and Development of the Optical Lantern.

By EDWARD DUNMORE.

CHAPTER XV.

NOTES on care and cleanliness in the dark-room. All bottles should be distinctly labelled, and their contents should be in accordance therewith. A bottle with a permanent label should never be used for anything else than indicated by it. All bottles should be kept corked or stoppered, and when used the contents should be poured out of the side opposite to the label and the last drop hanging on the lip be touched to the edge of the receiving vessel to prevent it running down the side, soiling the shelf or table, and very possibly contaminating something else. If a bottle after use be set in a dish for convenience, that dish should be well washed out before use. Fog streaks, spots, stains, and unaccountable markings often proceed from something conveyed directly or indirectly by the bottom of the bottle. Dishes are not sufficiently cleansed by a mere rinse of water; keep a rag and stiff brush to thoroughly clean out the corners and crevices.

The tenacity with which some chemicals will adhere to a smooth surface is astonishing. Developing dishes especially require careful attention, and rubbing out occasionally with dilute nitric acid. Deposits formed by alkaline developers are readily soluble in an acid wash. Toning dishes or bottles in which gold solutions are kept, are best cleansed by a mixture of nitric and hydrochloric acids.

On the whole, clear glass graduated measures are preferable to opal ones, and it is a convenience to have the graduations English on one side and French on the other. The worker will then gradually become accustomed to the metric system, which will eventually supersede all others. Small or minim measures should be provided with heavy feet, as less liable to be overturned. They should be conical in shape--as should any size less than ten ounces—as more accurate measurement is ensured thereby. In **delicate measurements** of less than five minims a dropping tube will be found an acquisition, and to those chemicals represented by ten per cent. solutions a dropping tube is best fixed permanently through the cork, and kept for that chemical only; they are inexpensive and a great convenience. A dropping tube dipped from one thing into another without cleansing is likely to lead to as much or more trouble as a dirty measure. A moist cloth or sponge should always be at hand in case of accidental spills or splashes, dry cloths should also be easily available. A moist good wash-leather is the best thing to remove surface moisture or deposits from gelatine films; it leaves no bits of fibre, is very absorbent, and there is not the slightest danger of injury to the film.

Never clean up or sweep out a dark-room immediately before use, it should be done at least an hour before, and a damp cloth passed over shelves, tables, and ledges in preference to a dry one. Allow no old bottles, parcels or packing to accumulate in the dark-room; if by accident any pyrogallic acid or hyposulphite of soda gets spilled on the floor, see that it is carefully removed and not merely brushed into the corners to be a source of contamination and defect until it is properly cleared away. There is an old saying, "Let sleeping dogs lie"—the better plan is to get rid of dangerous sleeping dogs altogether.

Never place implicit reliance in an apparently clean vessel until it is known to be clean, even then if it has been standing unused some little time the safest plan is to give it a rinse out, objectionable dust may have settled in it. For my own part I always make a practice of rinsing out every measure and dish just previous to development; it is very little trouble, and there is the satisfaction of knowing if things go wrong it is not owing to dust. Measures should always be kept turned down on a shelf. Always make a practice of never leaving a sensitive surface exposed that is not being operated upon, no matter how safe the light may be; any light will in time fog a plate. Never pack plates face to face, unless you are perfectly sure there is no grit enclosed between them. In packing exposed plates for conveyance put a piece of soft clean blotting paper between them; on no account use printed paper, or the probability is the printed matter will be set off on the plates and spoil the work. One day's contact will produce this effect, probably less might; some printed matter affects the sensitive surface more rapidly than others, but I believe all will sooner or later. Never store sensitive plates, films, or paper where **noxious vapours** can have access to them. Albumen paper or carbon tissue, being dried after sensitising, are particularly sensitive to injurious vapours. An escape of gas into the drying-room will cause trouble, and partially burnt gas more, as the carbon monoxide given off is a very destructive agency. Discard composition mortars if they are chipped or roughly cracked inside, unless the use of them is confined to one special purpose. If accuracy is required, do not place any faith in saturated solutions, which vary in strength with every change of temperature.

The strength of strongest liquor ammonia is always unreliable as it varies each time the bottle is opened, therefore it is practically impossible to retain it at a definite strength; it is rarely of the specific gravity, 880° as sold. When purchased it should be diluted with distilled water to half strength, which will have the effect of keeping it more uniform; it should always be stored in a cool place, and kept well-stoppered. Pyrogallic acid keeps whiter and better much longer in the dark than when exposed to the light. The acid adhering to the bottle, although not apparently changed in colour, will make quite a dark-coloured solution when the light has been permitted to act on it for a week or two, showing that oxidisation has taken place, and the acid somewhat deteriorated. When preservatives of any kind are used with a solution of this acid, they should always be dissolved in the water first before the addition of the pyro. Brushes and pads used for dusting the sensitive plate or the dark slide should never be laid down flat on the table in a dark-room, but hung up when not in use in receptacles devised for the purpose. When a gelatine negative is washed under a tap, keep the plate moving about under the stream so as not to let the impact of water fall on one spot, as it tends to reduce the density in that particular place.

(*To be continued.*)

The Lanternist's Practical Cyclopædia.—No. X.*

By CHARLES E. RENDLE.

Electric Lighting.—This, in part, has been covered in the article Electric Lamps; an outline of a system of installation may, however, enable the student to grasp the subject with more clearness. The latest and most perfected installation is that erected and laid by the Shoreditch Vestry in the north-east of London, which system is here traced. In the engine house the source of power is the burning of the parish waste—supplemented with coal—in a huge destructor; the noxious gases escaping from the vegetable matter being forced through the furnaces and burnt up, thus making the process of raising heat to raise steam most economical. As the destructors are kept going continuously, and power is wanted principally at night, water is conveyed from the tubular boilers at a temperature of 400° F. to a huge thermal storage tank. The engine house contains, further, three 1,000 volt direct current dynamos, run by compound engines of 225 horse-power, together with three 150 volt machines driven by 110 horse-power engines. The station is also furnished with a motor transformer and accumulators. The mains or cables are of three kinds:—(*a*) for the high tension current, (*b*) for the return current, (*c*) for the low tension current. The high tension current serves the lamps in series for street lighting, etc., while the low tension current serves the glow lamps in house to house lighting. Transformers are placed at periodical distances, which supply the current to the house mains. The accumulators are large glass tanks, supported upon insulated feet, and are recharged from time to time.

Electric Signal.—A means of communication between lecturer and operator by a miniature telegraphic system. A zinc and carbon battery, an "electric buzzer," a coil of conducting wire, and a push button is all that is required. These are fitted into a small wooden cabinet.

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Electrolysis.—The decomposition of a compound substance by the action of the electric current, or galvanism.

Electrophone Lantern Lecture.—A lecture given at, say, a centre, and transmitted by electrophonic apparatus to other centres.

Element.—The first rules or principles of an art or science. Bodies that cannot be resolved by chemical analysis.—*See* Chemistry.

Elevator for Screens.—A framework to which the screen is fixed, or other arrangement by which means a screen can be raised to its position with facility.

Elocution.—The art and power of speaking with expression; oral delivery according to a code of practised rules. Many speakers who are skilled in the art of speaking are adverse to the assistance of tutor or literature as a help to competence and grace in the art of address. Every schoolboy knows fully well that some men and women are—what is called—born orators, musicians, or painters, but surely that does not raise an objection to a systematic study of painting, of music, or of elocution. The cultivation of any study *must* improve the general style of the student, and in the case of elocution his delivery is more pronounced—often unconsciously to himself—and takes a higher range and conception of the subject than otherwise he could have done. The rules of elocution may be counted on the fingers of the hands, and although so few, they are of great importance to the public man or woman, who are recommended to give some attention and practice to the following headings:—

Articulation.—Distinct utterance. A word being a collection of letters, each letter has a value of its own. The vowels are vocal sounds, consonants are divided, some being vocal, some non-vocal; consonants being dependent upon the vowels, and cannot be produced without their aid, attention must be given to each, no matter whether a syllable in a word or a word in a sentence, unimportant or unemphatic as it may appear, must be clearly pronounced, this being the basis of all elocution.

Modulation.—The voice being a musical instrument, and its capacity in producing sound of great variety, a register of tones may be arranged for practice, taking the ordinary conversational tone as the medium pitch, with (say) three above and three below, which will give a range from the deepest chest note to the highest falsetto.

Illustration.—The art of illustrating by a perfect modulation.

Inflexion.—The rising or falling slide of the voice upon the accented syllable of the emphatic word in a sentence. Tones of speech are distinguished from tones of song; in the latter they jump from note to note, but in speech they are principally regulated by the sense.

Interrogatories.—Are of two kinds. In practice the determinate being read or spoken with the downward inflexion, the indeterminate with an upward inflexion, by which rule the points involved are best understood.

Antithesis.—The opposition of ideas, the art of expression by contrast. In the following example the antithesis is marked in italics:—

"Here lies our sovereign lord the king,
Whose word no man relied on,
Who never *said* a *foolish* thing,
And never *did* a *wise* one."

Climax.—In general argument there are gradations which lead to an undoubted conclusion. These gradations grow in fervour and power. The delivery in interest and impression increasing and expanding, both in tone of voice, facial expression, gesture, etc., till that conclusion is reached. In passionate declamation much judgment is required, for should the speaker exhaust himself at the start, what should have been the climax will be the least effective part. The practice of *cadences*, *accent*, *emphasis*, and *metre* are recommended, as is also the management of the breath, and natural gesture. William Enfield, LL.D., who lived a century ago, and who was considered the chief authority on this subject, closes one of his essays with advice to the student to "aim at nothing higher till you can read distinctly and deliberately," and

"Learn to speak slow, all other graces
Will follow in their proper places."

Electro Biology.—The science of the electric and magnetic forces, or the mesmeric influences in living organisms.

Elocutionist.—One skilled in the elocutionary art, one who treats of the art of correct oral delivery.

Enlarging Lantern.—A lantern specially kept for enlargements. The body should be so constructed that when the door at back is closed, the whole is light-tight, though the ventilation is also perfect and does not allow the light to flicker. They are made in various sizes, with carrier frames to take different size negatives. One of medium dimensions would be fitted with an 8 inch plano-convex condenser, and a $\frac{1}{2}$-plate portrait lens with a set of diaphragms, and used for $\frac{1}{4}$-plate, 5 by 4 inch, or $\frac{1}{2}$-plate negatives as required.

Entertainment.—The pleasure the mind receives from anything interesting; therefore, when a lantern lecture is spiced with an intelligence that proves elevating to each and all classes, that is entertainment of the highest and purest order.

Ether.—A most volatile liquid, colourless and highly inflammable. It is composed of carbon, oxygen, and hydrogen, and obtained by heating alcohol with sulphuric acid. When its vapour comingles with air it forms a most explosive mixture, when inhaled it produces insensibility, and as an anæsthetic is largely used in surgical operations; it being much safer than chloroform, and without the same unpleasant after-effects.

Ether Saturator, or Etho-Oxygen Light.—*See* Saturators.

Experiment.—To search by trial. An operation or design to discover some new truth. Putting to the proof. Lantern experiments to enquire into the science of the lantern for hitherto unknown knowledge.

Explosion.—Sudden bursting with violence due to the expansion of an elastic fluid. An explosive is a substance that will undergo rapid decomposition, producing a large volume of gas and generating a considerable amount of heat. An explosive may be solid, liquid, or gaseous. Coal gas mixed with air or fire-damp with air, are examples of gaseous explosives.

Exposure Meter.—A small instrument which to an extent acts as a gauge for exposures in the camera, guiding the operator with a fair accuracy as to lights and other conditions.

Fahrenheit.—The name of the inventor of the thermometer known as Fahrenheit, and which fixes the freezing and boiling points at 32° and 212° respectively (see Centigrade).

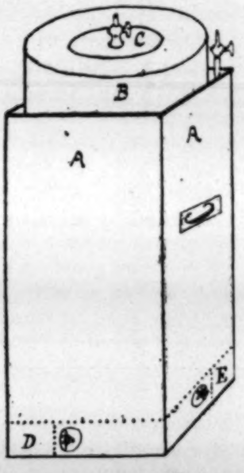
(*To be continued.*)

NEW APPARATUS.

MOSS'S ACETYLENE GENERATOR.

This apparatus, which will shortly be placed on the market, is constructed in three parts. The water tank A is made square, this shape having many advantages, the gas-holder B which fits loosely into the water tank, the carbide holder C which fits loosely into a central tube in gas-holder B. C is connected with B by a down pipe and up pipe, a condensing chamber at D connecting the two, while another down and up pipe, connected by another condensing chamber at E, allows gas to pass from gas-holder to outlet tap. A water tap at D prevents gas returning from gasholder B to generator C, when C is withdrawn for recharging.

The apparatus has been tested for lantern work during last season, and can be started in two minutes or less with light full on, all air being expelled when charging. It can be recharged at any time during an exhibition without risk and with very little smell. The gas is automatically washed and cooled before passing into the holder, and thoroughly dried before reaching the burners.



Owing to the construction (the entire apparatus being made of 24g. galvanised iron) a good and regular pressure is obtained, while at the same time there is no risk of water being spilt over the edge. This apparatus should be absolutely safe, as any excess of pressure in the generating chamber is immediately relieved by its rising up should such a pressure possibly take place. The apparatus we recently tried measures 24 inches high by 9 inches square.

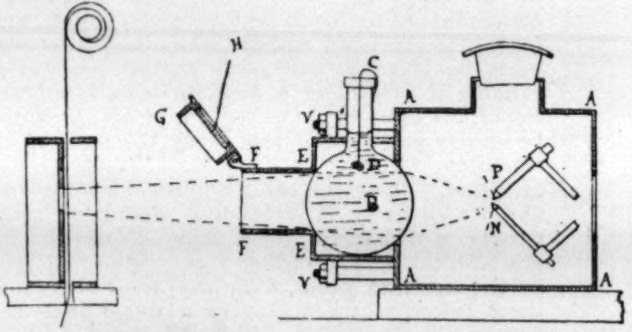
BALLOON CONDENSER FOR LUMIERE'S CINEMATOGRAPH.

The condensing lens which has hitherto been used for projecting, and which served to concentrate the luminous rays, also concentrated the heat very strongly upon the film and rendered it liable to be damaged if exposed too long. Arrangements have therefore been made to avoid this, and it is now replaced by a so-called balloon-condenser (a glass globe filled with water).

With the balloon globe replacing the condensing lens, the rays of light are concentrated without any appreciable loss of lighting power, and it absorbs the greatest part of the heat rays.

If the balloon globe has to be removed for any reason, or if the water runs away or evaporates, no condensation of light rays takes place, and consequently the operator need not be afraid of any heat on the film.

The annexed sketch represents the arrangement, and all Lumiére's cinematographs supplied by Messrs. Fuerst Bros. will in future be supplied by us with this new system of condenser.



AAAA, Projecting lantern.
B, Condensing balloon.
C, Wire suspending a
D, Small piece of coke.
EEFF, Black enamelled metal box to fix the balloon up against the lantern by means of the bolts and nuts, VV.
G, Stop valve provided with a movable ground glass screen, H.
PN, Electric carbons.

Messrs. Fuerst have a large selection of Jubilee pictures for projection.

CARTRIDGE KODAK AND NEW BICYCLE CASES AND ATTACHMENTS.

Several of the Eastman Company's kodaks are eminently suited for carrying awheel, but none, perhaps, are better adapted for attachment to various parts of the bicycle than their newest folding kodak, the No. 4 cartridge. In our last issue we referred to its general features as a film and glass plate camera, in which the rolls of film can be changed in daylight, and we now call attention to the special means adopted for safe and handy carriage of the instrument upon cycles. The lightness and unbreakable character of films makes the kodak particularly suitable for road riding, and, in addition, the company have in the No. 4 cartridge kodak devised a form of camera which, although it gives so large a picture as one 5 by 4 inches, yet is really wonderfully small and only measures 3⅛ inches in thickness. This latter flat folding form enables the camera, even when placed in its case, to be suspended from the top horizontal bar (Fig. I.) of the machine without in the slightest interfering with the action of the rider's limbs. It can also be attached to the vertical head-bar, as at Fig. II.

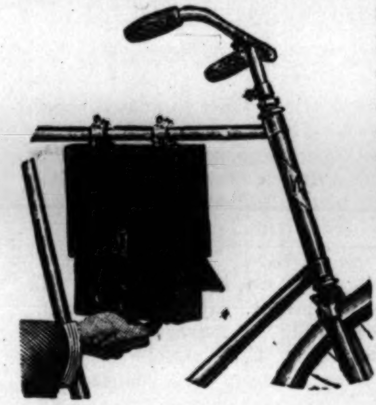


Fig. I.

The carrying case is of a very simple and efficient design. It is strongly made of wood, covered with fine grained leather and lined with cloth, and is fitted with springs on the inside, which take up the vibration of the wheel and prevent injury to the camera. By means of two single thumb-screws, which securely grasp the tubing, the case may be attached to the head of the machine or suspended from the top bar inside the frame. Being but 3¾ inches in thickness, the case in no wise inconveniences the rider when carried in the latter position, and stands but little chance of injury in the event of a fall. The clamps can be attached to any side of the case (except, of course, the door) and in using it on the bicycle head the door may be at the top, at either side or directly in front, in which latter position the case presents practically no "wind resistance." There being no play at the points of contact with the machine, it will not wear the enamel. The outside measurements of the case are 3¾ by 5¼ by 8⅞ inches.

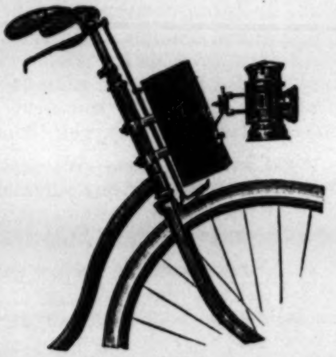


Fig. II.

The door fastens with a strong brass catch, which is very ingenious, and although it can be opened with one hand, yet it cannot jar open when attached as in Fig. II.

By means of a set of adjustable washers, the case may be held far enough in front of the bicycle head to allow for the free passage of the brake rod. It may also be provided with a lamp bracket attachment. A set of washers are furnished with each case, and by their use the clamps will firmly grasp any tubing from ⅞ to 1¼ inches, both inclusive. No wrench, screw-driver, or other tools are necessary in making the attachment.

Editorial Table.

"PHOTOGRAPHY IN A NUTSHELL," 1s., By the "Kernel,' published by Iliffe and Son, London, for W. Tylar Birmingham. A new edition of this useful book has been published; it has been enlarged and brought quite up to date. Hitherto, all that the public knew as to the author was the words "By the Kernel," but we learn in the preface that he has been induced by the publishers to come out of his shell, so he thus drops his *nom de plume*, and stands revealed—Mr. H. P. Hawkes. The book forms an invaluable photographic guide, and is well written. A chapter on Röntgen X rays by Dr. Hall Edwards is also of particular interest.

JUBILEE NEGATIVE BORDER.—There being a demand for photographs surrounded with a border to commemorate the Jubilee, Mr. W. Tylar, of Birmingham, has brought out a neat celluloid negative, which may be used for double printing, the centre being reserved for a portrait. The margin contains pictures of members of the Royal Family, and also four views. They are to be obtained in C.D.V. and cabinet sizes.

PATENT INTELLIGENCE.

The following List, relating to current Patent Applications, is compiled expressly for the "Optical Magic Lantern Journal" by W. P. Thompson & Co., Patent Agents, of 322, High Holborn, London, W.C., to whom all enquiries for further information should be addressed.

No.	RECENT PATENT APPLICATIONS.
14700.	17th June, 1897. H. R. Bean and H. Ringwood. An improved purifier and enricher for acetylene gas.
14835.	18th June, 1897. G. W. Gaskell and R. F. Reeve. A new or improved acetylene gas light apparatus, applicable for use in photographic studios for photographing by night.
14861.	19th June, 1897. C. Stafford-Noble and F. Liddell. Improvements in apparatus for taking, printing, and projecting successive photographic pictures.

14883. 19th June, 1897. J. Oldfield and R. Oldfield. Improvements in magic lanterns and lamp for same. Complete.

14905. 19th June, 1897. H. Sefton-Jones (P. P. H. Mace, France). Improvements in or relating to the production of acetylene gas.

14982. 21st June, 1897. V. T. Taylor. A multiple kinematoscope projecting machine.

15190. 25th June, 1897. W. Meed. A new or improved method or means of producing optical effects applicable to advertising greeting cards and the like.

15754. 2nd July, 1897. F. H. Smith. Improvements in acetylene gas generators.

15966. 5th July, 1897. A. Salomon and J. Jacquin. Improvements in apparatus for the generation of acetylene gas.

16132. 7th July, 1897. F. Stadelmann & Co., Ltd. (K. Thurnauer, Germany). Improvements in acetylene gas burners.

16171. 8th July, 1897. J. Adams. An improvement in the apparatus for exposing, projecting, and perforating the films used in animated photography.

16244. 9th July, 1897. J. Hamer. Improvements in or connected with kinetoscopes.

16344. 10th July, 1897. J. Aykroyd and B. Aykroyd. Improvements in apparatus for making acetylene gas.

16383. 10th July, 1897. E. B. Koopman (H. Casler, United States). An improved devise for regulating the speed of photographic or like films when in use, either for taking or exhibiting a rapid succession of photographic or other pictures of moving objects.

16386. 10th July, 1897. E. B. Koopman (H. Casler, United States). An improved apparatus for exhibiting a succession of photographic or other pictures.

SPECIFICATIONS PUBLISHED.

Copies of the following specifications may be obtained by remitting 1/- for each specification to W. P. Thompson & Co., Patent Agents, 322, High Holborn, London, W.C.

16080 of 1896. Routledge, Rosenberg and McDonald. Apparatus for taking, viewing, or projecting photographic images in rapid succession.

19126 of 1896. Voigt. Apparatus for producing acetylene gas.

17038 of 1896. FitzGibbon. Apparatus for generating and storing acetylene gas.

19053 of 1896. Thompson (Chivert). Production of acetylene gas and apparatus therefor.

19681 of 1896. Garchey and Regny. Appliance for showing by shadows on a screen objects appearing to move.

20406 of 1896. Trost. Acetylene gas lamps.

15603 of 1896. Heinze. Apparatus for taking photographic pictures of objects in motion, and for exhibiting such pictures.

18884 of 1896. Redfern (Schmidt and Christophe). Apparatus for photographing objects in motion, and for reproducing or exhibiting the photographs of such objects.

8470 of 1897. Chasemore. Optical toy.

12556 of 1897. Quatannens-Moens and Carreér-Dilger. Automatic apparatus for the production of acetylene gas.

8989 of 1897. Kerr and Fry. Apparatus for the production and storage of acetylene gas.

12923 of 1897. Schülke. Burners for acetylene gas.

Notes and Queries.

Inquirer.—(1) If the screen allows light to pass through it, it will improve matters to give it an opaque backing with thick paper after the style you suggest. (2) There would be no advantage in having a storage tank, unless when using the gas direct you found that with all gas taps full on there was still insufficient pressure, and such is not very probable.

G. H. Philp.—(1) Yes, it is an improvement, the transparencies themselves are larger. (2) It is American. (3) So far as we have been able to learn, there is no likelihood of it being placed on the market for some time, as the company wish to keep the control of exhibitions with it.

E. de A. Winter —Replied by post.

Canadian G.—(1) Stedman's oxygen generator is excellent. (2) We have not seen the other make, although we have several times been promised. (3) The apparatus you saw advertised in General Wants was brought out many years ago, but you will find particulars of it on page 62 of this journal for April, 1896, (4) Slater's patent was applied for in January, but in the absence of the final specification, which is not yet published, we can supply no details. There is no such weekly publication excepting the Patent Journal. (5) Get our January numbers for the last few years; they contain the indices. (6) We should be pleased to select such an apparatus for you. (7) Mr. Birt Acres manufactures for sale; the address Barnet, London, N., will find him. (8) The so-called making of the hydrogen consists in passing oxygen through an ether saturator.

Must have the Best.—We cannot give you an opinion as to which of the various cinematographs upon the market is the best, as there are so many excellent, and a choice now becomes a difficult matter.

D. Murray writes : " How can I make collodion so as to try the wet plate process ? " *Ans.*—Make two solutions as follows :—(*a*) Sulphuric ether, 20 ounces ; alcohol, 10 ounces; pyroxyline (gun cotton), 2½ drachms—label this plain collodion. (*b*) Iodide of cadmium, 90 grains ; iodide of ammonium, 90 grains ; bromide of ammonium, 40 grains ; alcohol, 10 ounces—label this iodising solution. For use add one part of (*b*) to three parts of (*a*).

To our Advertisers.—Some time ago we had a request from Mr. D. R. Eunson, of Dunedin, New Zealand, to send him a number of catalogues of each of our advertisers. The various firms were written to, and in consequence we sent out a large parcel. Mr. Eunson, in acknowledging the receipt of same, writes : " The price lists you forwarded I have sent out amongst enthusiasts, both lantern and photographic, and I hope the manufacturers may derive benefit through your kindness." . . . . ." As this letter came about the time this issue was being made ready for the [press, we are unable for want of space to publish several interesting paragraphs in the letter alluded to, but will do so in next issue.

R. T.—Your previous letter, which was anonymous, was not kept; consequently, we have no idea what the questions were. Will you kindly repeat them, and they will have attention.